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1929

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PROGRESS

U. S. Department of Agriculture

of the

Barberry Eradication
Campaign

in

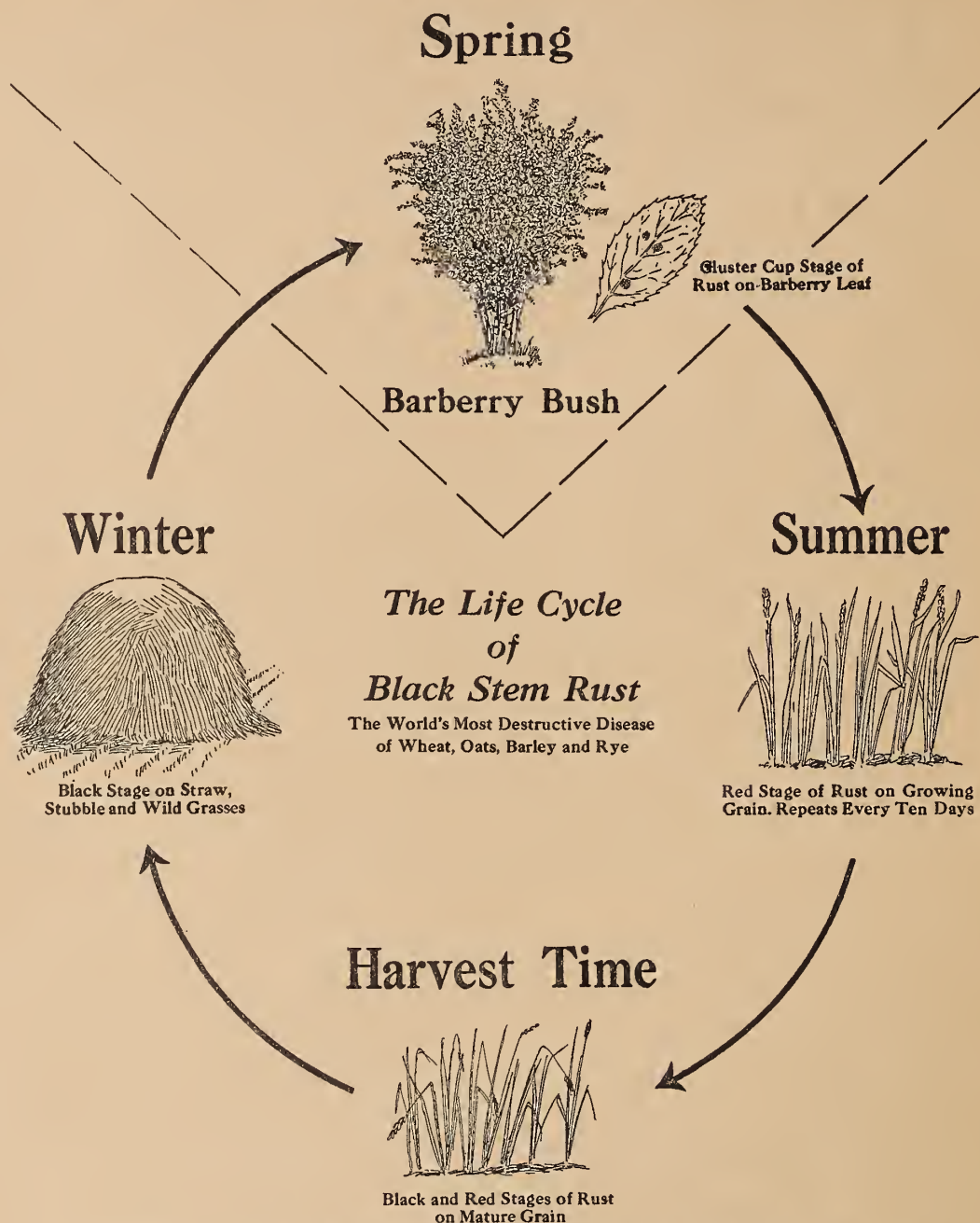
IOWA in 1929



Our Grain Crops Must Be Protected from Black Stem Rust

Barberry Eradication Pays

Remove the Barberry and Break the Rust Cycle



All Common Barberries act as starting points for Black Stem Rust early each spring. By destroying the barberry the early spring source of black stem rust is eliminated. The Common Barberry provides a means to bridge the gap between the black stage on grain in the fall and the red stage of the rust on grains and grasses the following spring.

BOOST BARBERRY ERADICATION—A PRACTICAL RUST CONTROL MEASURE

PROGRESS OF THE BARBERRY-ERADICATION CAMPAIGN

IN IOWA, 1929

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Office of Barberry Eradication, 2/ Bureau of Plant Industry,

United States Department of Agriculture

Introduction

The eradication of the common barberry is both a relief measure and a preventive one in its relation to the spread of black stem rust. If common barberry bushes were allowed to grow unhindered, producing seeds and multiplying, they soon would become so numerous and destructive that small grains (including wheat, barley, rye, and oats) would be attacked nearly every year by local as well as general stem-rust epidemics. It is interesting to note that since 1918, 1,019,298 common barberry bushes and seedlings and 30,949 sprouting bushes have been found and destroyed in Iowa. A large proportion of these bushes have been producing seeds. Therefore, barberry eradication has prevented millions of seeds from being spread by birds and other agencies.

The eradication of this large number of common barberry bushes has meant the elimination of a large number of stem-rust spreading centers in every county.

Survey and Eradication Activities

In 1929 survey activities were concentrated on the intensive survey of Allamakee County and the cleaning up of areas of escaped bushes in several counties, especially Greene County. Allamakee County has about the roughest topography of any county in Iowa. The hillsides are not only steep, being broken by high cliffs, but in most cases are covered with dense underbrush. This makes the search for common barberry in this county very slow work. Climbing steep, precipitous hillsides is not only dangerous in itself, but the presence of numerous rattlesnakes necessitates extreme caution. In 1929, 3,493 common barberry bushes and seedlings were destroyed in Allamakee County.

To find every common barberry bush even on the intensive survey is extremely difficult. The main object of this survey is to locate the places where common barberry bushes are growing and then eradicate all bushes found. This does not preclude the possibility of more bushes growing in those localities. It

1/ State Leader of Barberry Eradication in Minnesota and Acting State Leader of Barberry Eradication in Iowa.

2/ From the beginning of the campaign in 1918 until January 1, 1930, barberry eradication was a project of the Office of Cereal Crops and Diseases, of the Bureau of Plant Industry. On January 1, 1930, the Office of Barberry Eradication was established as a separate unit of the Bureau.

must be remembered that birds and other agencies have been spreading seeds for years and that these seeds may lie in the soil several years. These conditions necessitate several thorough reinspections of the localities where barberries previously have been destroyed.

The necessity of searching for common barberry in every place where a shrub can grow was clearly demonstrated this year. It was not uncommon to search through a woodlot of more than 100 acres and find but one barberry bush. On several occasions an immediate recheck of this woodlot would fail to reveal additional bushes. If the one bush had been allowed to remain it would have produced enough seed for the birds to spread throughout the woodlot. This eventually would have resulted in the whole woodlot being filled with bushes, which under favorable conditions could spread an enormous amount of stem rust.

The problem of locating escaped bushes grown from seeds scattered by birds and other agencies obviously complicated the Iowa survey in 1929.

Fence rows furnish a good place for the development of barberry bushes. In cut-over woodlots, where birds have dropped large numbers of seeds before the trees were cut off, common barberry bushes seem to take a new lease on life and develop in large numbers. When given plenty of light they grow rapidly.

Common barberry also was found growing on rocky cliffs this past season. Therefore, with the possibility of finding a common barberry bush in almost any place, the field agents searched every place where a shrub could grow.

The checking of areas of escaped bushes in counties besides Allamakee resulted in the eradication of 10,166 common barberry bushes and seedlings. This makes a total of 13,659 bushes and seedlings found and eradicated in Iowa during 1929.

Eradication

Common barberry is easily eradicated if the proper methods are used. Most bushes are killed by applying a layer of common salt over the base. There is no necessity for cutting the bushes, as they die quicker if the canes are not cut off.

Bushes growing in gardens or near valuable trees necessarily must be dug, and every root, no matter how small, must be removed to prevent the development of sprouts.

Under no circumstances should attempts be made to kill barberry bushes by cutting them. This procedure will stimulate root growth and will never kill the plants.

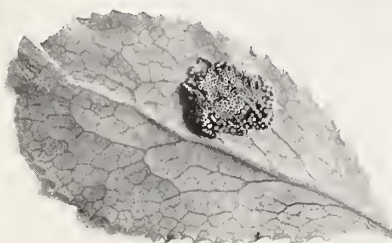
In case common barberry bushes are found, the courtesy of reporting them to the Barberry Office, Iowa State College, Ames, Iowa, will be appreciated. This cooperation is necessary because additional bushes often develop from seed previously scattered. For this reason periodical inspections are made of these places to get rid of bushes that have developed since the old ones were eradicated.

BLACK STEM RUST SPREADS FROM COMMON BARBERRIES



to Wheat, Oats, Barley, Rye and other Grasses.

Black Stem Rust as it appears on the leaves of the Common Barberry



Enlarged single leaf



Plump healthy grain



Shriveled rusted grain

DANGEROUS NEIGHBORS

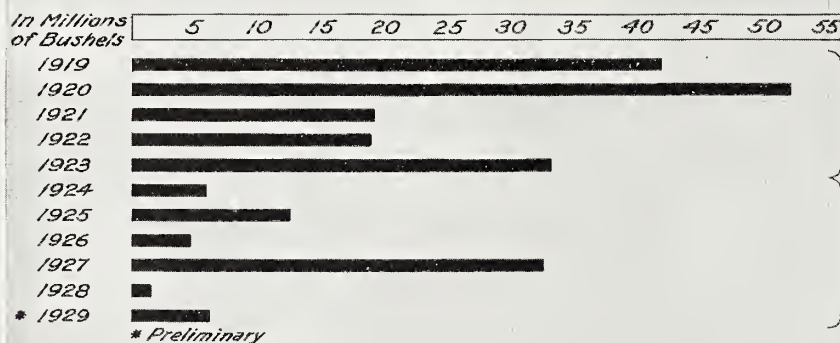


Common Barberry Bushes growing near grain fields



Common Salt Kills Barberry Bushes and Prevents Sprouting

Wheat Losses in Barberry Eradication Area, 1919-1929

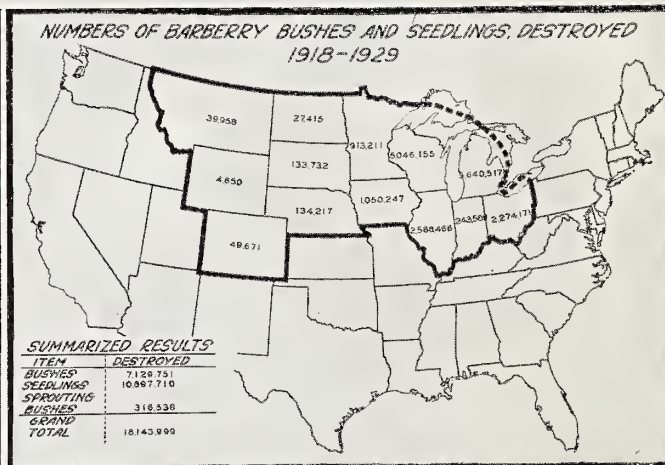
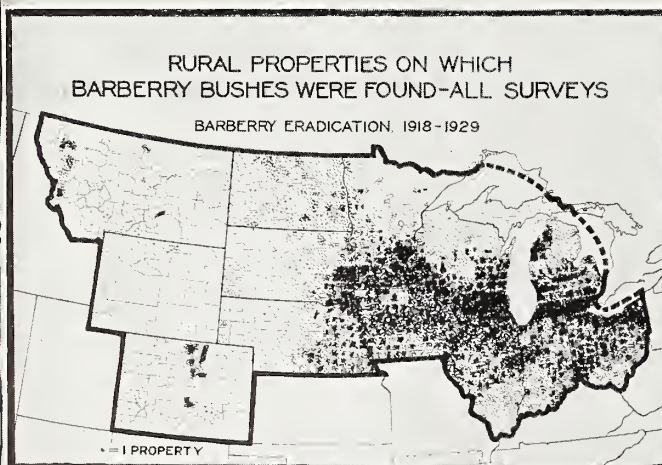


The average annual loss for the first five year period, 1919 to 1923, was approximately 33,000,000 bushels.

The average annual loss for the next six year period, 1924 to 1929, was approximately 10,500,000 bushels.

The losses to small grain crops caused by black stem rust have been reduced since the beginning of the barberry eradication campaign in 1918. The breeding of rust-resistant varieties, the use of early maturing varieties, and the sowing of crops early, have aided barberry eradication in this reduction.

“BARBERRY ERADICATION PAYS”



All Known Methods of Rust Control Must Be Employed

While barberry eradication is of first importance, there are several known methods for reducing losses due to stem rust. Early sowing of grain, proper preparation of the seed bed, avoidance of low, poorly drained land, proper use of fertilizers, in fact, anything that promotes early ripening of the grain, will help to reduce the danger from rust.

Certain varieties of wheat, oats, and barley that are more disease-resistant than others have been produced by plant breeders. Wherever these varieties meet the requirements of a given region and are desirable from the standpoints of yield, milling quality, and resistance to other cereal diseases, they should be substituted for the less satisfactory varieties.

New Strains of Destructive Black Stem Rust

Develop on the Common Barberry

The production of rust-resistant varieties of grain probably will be much more successful when all common barberry bushes have been eradicated. The reason for this is shown in the recent important discoveries made in the Canadian Rust Research Laboratories at Winnipeg and by E. C. Stakman and his coworkers at the University of Minnesota. Both of these groups conducting independent research have proved that entirely new strains of stem rust are produced if two different forms of the rust crossbreed on barberry leaves. The certainty that new forms of the dangerous disease may appear suddenly, makes the eradication of the common barberry all the more imperative, since it is on the barberry alone that this crossing can occur in nature. The new and apparently resistant varieties of grain are not safe with barberries near. If for no other reason than to protect the new kinds of superwheat which are now in the process of being developed, all common barberry bushes should be destroyed.

Educational Activities

School children at present are helping and will continue to help in ridding the State of common barberry bushes if they are properly taught to know the bush and its relation to black stem rust. With this in view, the schools in 18 counties of northeastern Iowa were visited and supplied with material for teaching the relation of common barberry to black stem rust. Requests for additional material constantly are being received.

Another means by which boys and girls are being encouraged to look for common barberry is the presentation by the Conference for Prevention of Grain Rust of Minneapolis of a bronze medal for finding a location of common barberry. Sixteen boys and girls have availed themselves of the opportunity of finding locations of common barberry and winning medals. As a result of their work, 601 bushes were found in 1929.

Publicity Activities

The fine cooperation of the newspapers and other press agencies in Iowa has aided the barberry-eradication campaign in its survey and educational activities. The field agents find the search for common barberry much easier when the people in a county have learned that a survey is being made. In many instances property owners await the arrival of the field agents so that they may learn to identify some shrub or other on their properties which they think may be common barberry.

These people learn about barberry and its relation to black stem rust from their newspapers and magazines and from other sources, such as circular letters sent out by the State Leader to all rural mail boxes.

Cooperation

The United States Department of Agriculture, through its Office of Barberry Eradication in the Bureau of Plant Industry, is doing its utmost to find and destroy all the common barberry bushes in Iowa. The Conference for Prevention of Grain Rust of Minneapolis renders excellent assistance in educational and publicity work. The Iowa State College, especially through its Extension and Plant Pathology Division, the State Entomologist, and the Superintendent of Public Instruction, are giving excellent assistance in finding and eradicating common barberry.

Future Problems

Unquestionably the immediate problem in Iowa is to push the intensive survey of the grain-growing areas, where common barberry bushes not only are producing seeds that are being scattered over the countryside, but are spreading an enormous amount of stem rust. It is logical to make every effort to get these bushes as soon as possible.

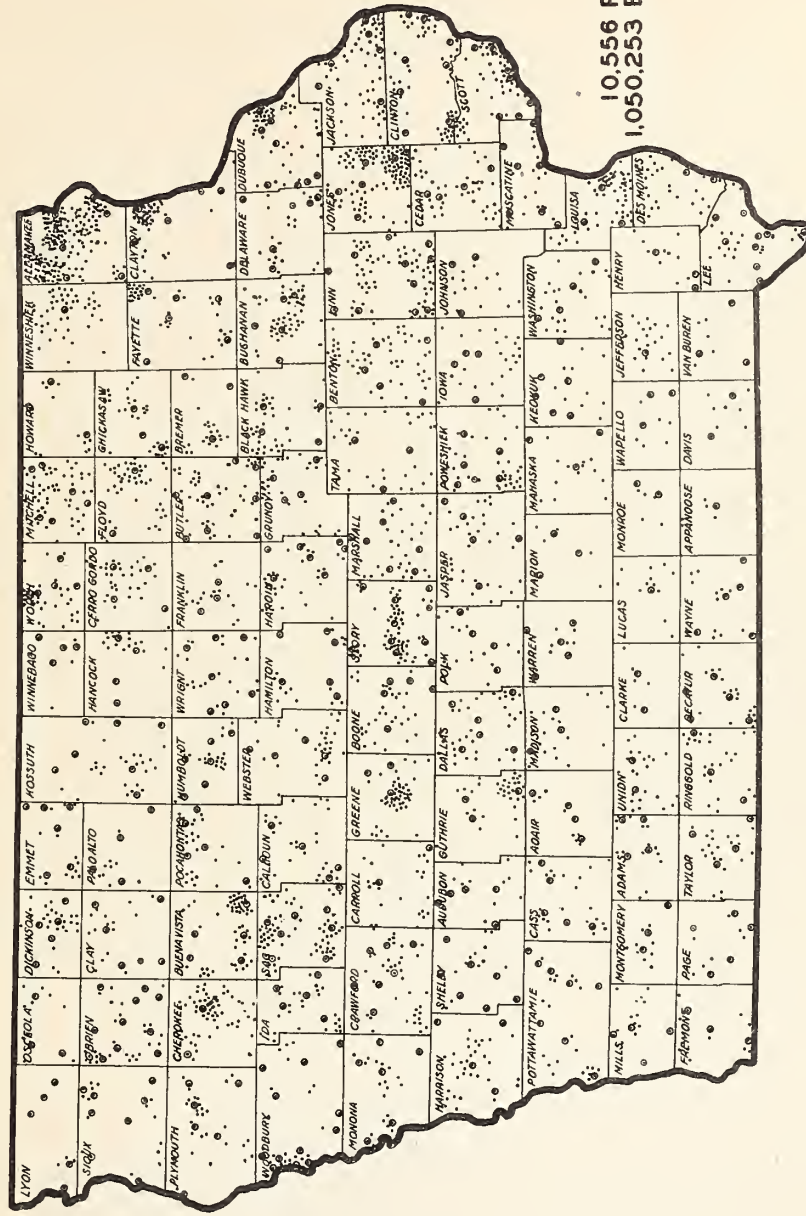
Another problem that must be faced is the checking of localities for barberry seedlings where old barberry bushes have been destroyed during the intensive survey. Checks of this kind are necessary at least once in five years. If not made, the original efforts to get rid of common barberry will have been wasted.

Past experience has demonstrated that barberries, developing from seeds spread by various agencies, are constantly being produced. These bushes are capable of spreading an enormous amount of stem rust to grains; therefore, eternal vigilance in finding and destroying common barberry bushes is a necessary crop-sanitation measure to prevent future severe local epidemics of black stem rust.

Washington, D. C.,
March, 1, 1930.

PROPERTIES HAVING BARBERRY BUSHES 1918-1929

IOWA



10,556 PROPERTIES
1,050,253 BUSHES

FARMS HAVING BARBERRY BUSHES
TOWNS HAVING BARBERRY BUSHES

Common Barberry Spreads Black Stem Rust

*When you find
a spiny bush
with-*

*Edges of leaves
like this*



Spines like these



Berries like these



Inner bark yellow



*It is a
Common Barberry
and should be
reported at once*

**Know
Common
Barberry**

Look For It!

*Spread of
Barberries by
birds*

*Birds eat the
berries*



*Carry them to their
roosting places*



*Where they cough
up the seeds*



*From which seedling
bushes grow*



*They in time
bear fruit which
is again carried
farther on*

Look For and Report All Common Barberry Bushes

To the State Leader of Barberry Eradication, in care of your State Department
of Agriculture or your State Agricultural College.

Common Barberry Bushes

spread

Black Stem Rust

to

WHEAT, OATS,
BARLEY, RYE,
and Many Wild
Grasses

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